

THE RESOURCES AGENCY OF CALIFORNIA  
DEPARTMENT OF FISH AND GAME  
MARINE RESOURCES OPERATIONS

REPORT FOR THE MONTH OF AUGUST 1965

Good weather allowed the trawl fleet to make high landings of Dover sole, English sole and good catches of rockfish.

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A bluefin tuna tagged off Baja California in August 1962 was recaptured off Japan on June 23, 1965. The fish had grown from 78 cm (30 3/4 inches) when tagged to 138 cm (54 1/4 inches) when recaptured. This is the fifth recapture from Japan of bluefin tagged off our coast.

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Three albacore and 16 bluefin tags were recovered from the local fisheries. All the bluefin and two of the albacore were tagged during 1964. The other albacore was tagged this year.

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Results of the 1965 sea lion census show 22,167 sea lions in California compared to a count of 25,038 in the 1961 census. In addition, 3,563 elephant seals and 1,062 harbor seals were counted.

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A new artificial reef financed by the Wildlife Conservation Board was placed off Ventura on August 25.

Bottomfish .....	3
Shellfish .....	3
Pelagic Fish .....	5
Tuna .....	6
Sportfish .....	8
Special Projects .....	10
Biostatistics .....	11
Biological Notes .....	12
Vessels .....	13
Miscellaneous .....	13

## 1. BOTTOMFISH

### A. Fishery

Flatfish: Fishing effort was high as favorable weather and sea conditions prevailed throughout August. In the Eureka area, where landings were curtailed by plants due to a shortage of filleters, the majority of effort was expended near port in depths from 20 to 50 fathoms. Fishing in central California areas was conducted in depths out to 200 fathoms with the majority of effort also concentrated in shallow depths.

Flatfish landings were high with Dover sole predominant at Eureka and Fort Bragg while English sole was the leading species at other ports. Petrale landings were moderate at most ports. Trawl catches of California halibut were significant between Santa Barbara and Half Moon Bay.

Rockfish: Good catches of rockfish were landed by the trawl fleet during the month. Landings increased substantially at Santa Barbara and improved slightly at other ports. Bocaccio, chilipepper, and canary were the predominant species in the catch.

### B. Research

Flatfish: Routine market sampling of flatfish for age and size composition was conducted at major ports. Preliminary processing of log and ticket data was accomplished for all landings.

A draft of results of the Monterey Bay English sole age study is in preparation. Analysis of growth from recaptures of tagged English sole was begun. A collection of large Dover sole ranging in length from 20 to 27 inches was obtained to compare ages interpreted from scales and otoliths.

Tag returns included 10 Dover sole released in 1962 and 11 petrale sole released in 1964. In addition, two Pacific halibut tags were processed. Recaptures were made in the vicinity of release for all returns except a petrale which moved 225 miles north from central California to Newport, Oregon.

Rockfish: A rockfish cruise aboard the N.B. SCOFIELD to southern California offshore banks and islands began on August 30.

The program is on schedule.

## 2. SHELLFISH

### A. Fishery

Abalone: During the first 2 weeks of the month, divers were able to operate only 2 or 3 days in the Morro Bay area, due to rough weather. Large swells and dirty water continued to restrict diving severely during the last two weeks of the month. Because of the short supply and heavy demand, divers at Morro Bay received either \$12.00 per dozen or \$1.20 per pound (of recoverable meats) for red abalone. This price is the highest divers have ever received for red abalones.

Crab: Season closed. Preparations are being made for the pre-season cruise in October.

Oysters: Oyster production continued good at Drakes Bay where the oysters are in good condition. Humboldt Bay oysters are in fine condition but production is down due to decreased demand.

Summer mortalities affecting one-year-old and two-year-old oysters have occurred in Humboldt Bay.

Shrimp: Areas A and B-2 are closed because the quotas were reached in July. There have been a few exploratory trips in Area B-1 (Ft. Bragg) and only 4,200 pounds have been landed. No landings have been reported from Area C (Morro Bay).

Statewide landings now total 1,427,085 pounds compared to 980,608 pounds for the 1964 season.

## B. Research

Abalone: The experimental shellfish hatchery at Morro Bay, owned and operated by Brebes' Sea Foods, is rearing approximately 5-6,000 young abalone hatched August 17 in the laboratory.

Crab: Historical records of crab landings were studied and organized for a bulletin. A meeting was held at Crescent City with Oregon Fish Commission biologists to discuss a possible increase in the crab size limit from 6 1/4 to 6 1/2 inches and a uniform season opening for the coast.

M.R.O. personnel joined Humboldt State College personnel and fished 10 traps for 2 hours one morning off the north spit of Humboldt Bay. Crabs were also taken in two trawls fished in the same location. The catch included 48 females and 24 sub-legal males; 12 of the sub-legals, those which had recently moulted, were tagged with suture tags.

Oysters and Clams: A number of European oysters (*Ostrea edulus*) have been induced to spawn and the larvae are being reared at the Pigeon Pt. shellfish hatchery. Several hatches have settled on specially prepared collecting plates.

Shrimp: Two juvenile ocean shrimp, reared from the egg are still living at the Redwood City temporary laboratory. After reaching the juvenile form, each moulted two times in approximately 12 days.

A preliminary report of the development of these shrimp, including description of several larval stages is being prepared for P.M.F.C.

Summarizing the 1965 shrimp sampling and cruise data is continuing at Eureka. Work has begun on analyzing the contents of several hundred hake and arrowtooth halibut stomachs collected during the last few months for incidence of small shrimp.

It appears that the abundance of juvenile shrimp is significantly lower than last year at this time. An otter trawler, the FLICKER

from Crescent City, is supplying us with weekly collections of hake and arrowtooth halibut.

Program is on schedule.

### 3. PELAGIC FISH

#### A. Fishery

Landings in tons	<u>August 1 - 31</u>		<u>January 1 - August 31</u> 10 yr. mean		
	<u>1965*</u>	<u>1964</u>	<u>1965*</u>	<u>1964</u>	<u>1954-1963</u>
<u>Species</u>					
Anchovy	75	306	1,057	1,414	8,761
Mackerel, jack	2,171	3,303	16,221	23,271	16,366
Mackerel, Pacific	85	2,068	700	6,438	9,432
Sardines	10	189	573	1,430	2,890
Squid	30	759	4,717	5,878	4,536
TOTAL	2,371	6,625	23,268	38,431	41,985

\*Estimated. Accumulated landings are revised monthly.

Except for jack mackerel and squid, wetfish landings remained below the long term mean. Most of the mackerel landed were from Cortes Bank.

Additional catches came from San Clemente and Santa Cruz Islands as well as the inshore areas of southern California.

Approximately 35-40 roundhaul vessels fished 22 days each. At least half of this effort was for tuna, thus curtailing wetfish landings. Cannery limits, on mackerel, ranged from zero to a minimum of 60 tons. These limits probably had no effect on total landings.

Although the central California sardine season opened August 1, no landings of significance have been reported. A few tons for bait were landed by lampara net fishermen at Moss Landing. Mackerel and anchovies were delivered to the Moss Landing Cannery, squid only at the one remaining Monterey cannery.

The southern California sardine season opens September 1 and is expected to be one of the worst on record. The statewide season ends March 1, 1966.

The Monterey Bay squid fishery is becoming increasingly important with production dependant on an export market.

Live Bait: A scarcity of inshore anchovies near Newport Beach, Oceanside, and San Diego forced local bait haulers to catch some of their bait in the Los Angeles - Long Beach harbor area. Fourteen bait fishermen reportedly sold a total of 222,000 scoops (est. 1,388 tons) of bait.

#### B. Research

Age reading of Pacific and jack mackerel otoliths, collected during 1959-1961 sea surveys, was completed. Coding of jack mackerel

commercial sampling data for 1947-1964 was completed and is being double checked.

Anchovy age composition data for the 1957-1965 seasons was recompiled and sent to Biostatistics for computer processing. Scale and otolith readings from January and February samples were compared.

Evaluation of a revised sampling plan for Pacific mackerel should be completed during the next 2 weeks.

Sea Survey: The second fall survey cruise left on August 17 for central Baja California. At last report the ALASKA was having engine trouble and may be forced to return to port early.

The 1955 sea survey data was printed as Data Report No. 1 sponsored by the Marine Research Committee. Five more years data will be ready shortly.

Aerial Survey: The coastal waters between Point Reyes and Point Loma were surveyed. Anchovy schools were observed at Half Moon Bay, Monterey Bay, Morro Bay, and Pismo Beach. Bonito schools were noted between Point Vicente and Dana Point.

Schedule: Sea duty and vacations curtailed activities of the Fisheries Investigation Project. Lack of seasonal aid time, to assist in sampling and in data coding, will hamper efforts directed toward eliminating the serious backlog of jack mackerel data.

#### 4. TUNA

##### A. Fishery

Albacore: The commercial fleet has scattered between northern Baja California and Puget Sound. Centers of fishing activity were located off Ensenada, Pt. Conception, Morro Bay, Fort Bragg, Eureka, Cape Blanco, Columbia River, and Destruction Island. The slow fishing at these locations was reflected in the poor California landings of a little over 3,000 tons or about one-half those reported for the same period last year.

Fishing improved steadily for the San Diego and Los Angeles sport fleets, but catches near San Clemente Island ended suddenly during the last week of the month. The sportsman's total catch is slightly ahead of last year's eighty-nine thousand fish harvested during July and August.

San Pedro purse seiners caught over 100 tons of albacore during several nights of good fishing on the local grounds. These night catches, made between midnight and dawn, are unusual since seiners in past years have caught albacore only during daylight hours.

The fishery for albacore was moderately successful off the central California coast. At the end of the month, fair catches of albacore were made within 20 miles of shore. Intermittent offshore winds have interfered with fishing. This fishery should reach its peak in central California waters during September.

## B. Research

Between August 10-13, 288 albacore averaging over 19 pounds were tagged aboard the Mission Bay Research Foundation vessel, SEASCO. Three albacore tags were returned during the month; two were from fish released last season, and one from this year's tagging trip.

Fish Bulletin 128, "An Analysis of California's Albacore Fishery" was finally received from the printer. The bulletin was distributed to individuals on the regular Fish Bulletin mailing list and to sport and commercial fishermen who provided data for analysis.

## C. Fishery

Bluefin Tuna: Fishing has continued poor this year with about 3,100 tons caught, considerably less than the 8,300 tons for the same period last year.

Reluctance of canners to take tuna resulted in many boats waiting 2-4 weeks for their fares to be sold at auction. At months end, about 700 tons of bluefin were waiting to be unloaded.

Sporadic catches were made off central and northern Baja California. Good concentrations of fish have failed to show up this year in the usual fishing areas.

The local bluefin fishery began on August 3, but by months end only 550 tons were landed at the canneries. Most of the fish were taken between San Clemente and Los Coronados Islands. Schools were scattered and seiners had difficulty in locating significant quantities of fish.

## D. Research

A bluefin tuna tagged aboard the chartered purse seiner WEST POINT in August, 1962 off Cape San Quentin, Baja California was returned to us from Japan. The fish, about 78 cm at release, had increased in length to 138 cm. It was recovered on June 23, 1965 by Isaburo Sakonaka, a yellowtail set net fisherman, operating off Hakiri, Mie Prefecture, Japan. The tag was returned to us through the courtesy of Hajime Yamanaka, Nankai Fisheries Research Laboratory and his colleague Susume Kume stationed at La Jolla. Susume Kume delivered the tag to the Bureau of Commercial Fisheries. The Bureau financed the charter of the WEST POINT as part of the cooperative tagging program in which we are participating. This recovery is the fifth from Japan and represents a significant contribution to our steadily increasing knowledge of bluefin tuna growth and migration.

Sixteen tags released in 1964 were also returned. Our port contact men were able to obtain measurements on nine of these recoveries.

Collection of age, length, and catch-effort data has continued routinely.

Abstraction of vessel logs is up to date, but scale reading is behind schedule. Work has commenced on a manuscript validating the scale method for bluefin tuna age determination. Much of our tagging information on growth will be valuable in this analysis.

Initial steps were taken to obtain samples of bluefin and albacore eye lenses from Australia and adjacent areas. This is the first step in analyzing Pacific tuna populations since the establishment of routine electrophoretic procedures.

E. Miscellaneous

The season's first local marlin was caught on August 1. By months end 40 had been landed and prospects appeared good for continued good fishing.

F. Schedule

The tuna program is behind schedule because of one vacancy and personnel assigned to the Department's planning project.

5. SPORTFISH

A. Partyboat

Research

During a 19-day cruise of the N.B. SCOFIELD, 632 California halibut were tagged. One tagged halibut was recovered from the March 1965 tag lot. Growth was negligible, but a southward movement of 37 miles was recorded. Three tagged sand bass were recovered following liberty periods of 248, 231 and 36 days. One bass moved 10 miles, one did not move, and no data were available for the third recovery.

Fishery

July partyboat skippers logged 539,386 fish of 50 species. Aside from the usual heavy catches of bass, rockfish, bonito, and barracuda, 195 sturgeon, 29 giant sea bass, 18 hake, 4 thresher shark, and 1 octopus were reported. The catch of key marine game fish accumulated through July compares with 1964 as follows:

<u>Through July</u>	<u>1965</u>	<u>1964</u>
Rockfish	742,893	517,077
Kelp and sand bass	663,328	587,178
Barracuda	309,276	173,689
Bonito	260,745	537,651
Calif. halibut	58,065	68,100
Salmon	38,414	60,131
Yellowtail	7,047	26,765
Striped bass	2,506	9,131

Project is on schedule.



B. Environmental and Behavioral Studies of Coastal Sportfish  
DJ F22R-2

We expended considerable effort on our project manuscripts. At month's-end a rough draft of our Point Loma study was nearing completion.

On August 18, project divers collected environmental samples in the vicinity of the San Onofre nuclear power plant. These samples will be used by the State Department of Public Health in their radioactivity level monitoring program.

San Clemente Island was visited on August 26 to replace the tape on our thermograph and collect spiny lobsters for life history studies. Temperatures ranged from 57° through 68°F during August at this 70-foot depth thermograph station. As before, regular diurnal rhythms were apparent.

At San Clemente Island, the lobster breeding season has apparently passed its peak; only a few "berried" females were seen. Mass moulting was evident as nearly 95% of the spiny lobster sample had new shells. The offshore movement of the breeding population has initiated and our entire sample (100) was collected in the vicinity of one cave.

Juveniles still displayed their usual abundance in the shallower (less than 20-foot) waters, however.

Turner, Diving Officer, with assistance from Diving Safety Board members Wardens Hugh Thomas and William McGuire, conducted a SCUBA certification school August 23 through 27. The five candidates for certification, 3 from MRO and 2 from Patrol, executed the required diving with dispatch, completing all the required work. As positions for these divers become available in their respective Regions, they will greatly assist the various Departmental diving programs.

With the hiring of a seasonal aid (Pete Major) much general office work, library research and identifications of specimen were completed. However, our inability to fill the permanent diving position has caused a lag in the projects work completion schedule and we are currently over a month behind.

Ebert met with the State Personnel Board interviewers on August 23 and 24.

C. Blue Rockfish Management Study (DJ F19R-3)

Juvenile blue rockfish were trapped at the Monterey breakwater for growth study. Four tagged blue rockfish were recovered at the breakwater while diving. We now feel that we have sufficient growth data for the first 2 years of growth of blue rockfish.

Tagged blue rockfish are becoming scarce at the Monterey breakwater and diving for tagged fish is no longer practiced. To date, we have over 220 returns from Monterey harbor with good growth data and many more returns with no growth data. Fishermen interviewed have revealed that there have been many unreported tagged

fish recoveries. The returns have shown no movement from the area.

The bulk of the month was spent analyzing trapping and tagging data and reading scales and otoliths.

Fish were sampled at the Underwater Society of America and U.S. National Spearfishing Championship at Carmel.

The project is on schedule.

D. Southern California Marine Sport Fish Survey (DJ F2OR)

Field census work for the month indicated shore fishing activity slightly increased over July. Some nice catches of corbina and spot-fin croaker were recorded.

Computation of catch statistics from skiffs at launching ramps for the 1964 survey has been completed. Bonito was unquestionably the most frequently caught fish; 39 percent of the estimated total catch. The combination of kelp and sand bass placed second; contributing 13 percent; the California halibut followed, accounting for 11.4 percent. The white croaker ran fourth with nine percent of the catch.

A preliminary trial FORTRAN program has been prepared for processing some of the data for the current shore fishing survey and trial debugging runs should be completed by mid-September.

Revision of the Barracuda manuscript was nearly complete by month's end, it should be ready for resubmission early in September.

Project is on schedule.

6. SPECIAL PROJECTS

A. Southern California

The 1965 sea lion census was completed early in the month when Aplin and Carlisle made counts of all sea lions on the aerial photos taken during the flights made in June. The counts revealed a sea lion population on the California coast and offshore islands of 22,167. This compares with a statewide total of 25,038 counted during the 1961 census. An elephant seal count of 3,563, compared to 806 in 1961, and a harbor seal count of 1,062 was also made. Results of the census are being prepared for publication.

An artificial reef, financed by the Wildlife Conservation Board, was placed off the Ventura Marina on August 25.

A short exploratory cruise was made aboard the Nautilus in the vicinity of Santa Catalina Island and Farmsworth Bank.

Project is on schedule.

B. Northern California

All stations of the San Francisco Bay Study were sampled. In addition, several hundred English sole were collected for the virus study being carried on by Dr. Robert Cooper of the University of California at Berkeley. The NAUTILUS also collected several dozen skates and rays for class study at the University of California at Davis.

7. BIOSTATISTICS

A. Data Processing

Regular Reports:

June statistical reports of commercial fish landings and shipments were compiled.

July cannery and processor reports were completed and the letter summarizing the tuna case pack was distributed.

July marine partyboat catch records were tabulated and the letter summarizing the catch was mailed.

Annual Reports:

Annual reports summarizing the 1964 landings and shipments were prepared for the following species:

Albacore	Lingcod
Anchovy	Rock crab
Barracuda	Sablefish
Bluefin	Skipjack
Bonito	Yellowfin
Herring	Yellowtail

Reports showing the landings and shipments by origin block and month for each species were run on a 1401 computer and copies will be transmitted to the field offices.

Special Reports:

A report showing pounds of mackerel landed at Terminal Island canneries from April 26 to May 12, 1965 and the number of boats involved was compiled for Art Bryarly, Wildlife Protection.

Reports were prepared for Walt Dahlstrom showing bay shrimp landings by month, origin, number of delivery dates, number of boats and types of gears.

The first report of unregistered fishing boats landing fish for the current year was completed and mailed to Wildlife Protection personnel.

Records of fishing trips from albacore boats were summarized on the 1107 computer for Bill Craig, Tuna Investigation.

Work in Progress:

Work is continuing on the 1964 Fish Catch Bulletin. Present schedule calls for delivery to the editor by September 15.

August commercial fish receipts and partyboat logs are being edited.

Field:

Field contacts were restricted to the local area due to vacation and attendance of the diver training activities at Catalina Island.

B. Technical Assistance and Biometrical Analysis

Statistical and Mathematical Analysis:

Consultations on statistical problems were held with personnel from five MRO projects during the month.

Work continued on the shrimp sampling plan write-up.

Computers:

The gear editing portion of the sablefish boat catch analysis program was run on 1964 data.

Debugging and checking continued on the fishing power program.

The Lockheed study on a State of California Information System was reviewed and discussed with Mr. Rossman.

8. BIOLOGICAL NOTES

The inshore movement of warm water has created a flourishing albacore sportfishery. Unusually calm seas have permitted sport boats to venture out as far as 10-20 miles. The boats are averaging 10 to 15 fish per day, weighing from 15 to 20 pounds. The main activity is located west of Trinidad where 60°F water is reportedly 15 miles from shore.

A giant sea turtle was reported about two miles west of the Trinidad whistler. The turtle's length was estimated at 5 feet and its weight between 400 and 500 pounds. The animal was headed in a southerly direction.

Three more flathead sole, Hippoglossoides elasodon, were received from a local trawler. A second specimen of kelp bass, Paralabrax clathratus, was received from a sportfisherman at Trinidad pier.

The trawler, INA, captured a 9 inch female Pacific sandfish, Trichodon trichodon, west of the Humboldt Bar in 23 fathoms. The fish was deposited at the Eureka lab.

## 9. VESSELS

### ALASKA

On the 7th, the vessel returned from a two weeks Pelagic Fish cruise off Baja California. On the 17th, the ALASKA sailed again for the coastal waters off Baja California to conduct Pelagic Fish study. She remained at sea the balance of the month. Scheduled: 24 days; operated: 23 days. Sailing delayed because of racial trouble in the harbor area.

### N. B. SCOFIELD

The N.B. SCOFIELD conducted a 3 weeks halibut study off the coast of southern California and the Channel Islands. Scheduled: 20 days; operated: 18 days. Engine breakdown delayed sailing one day, excellent weather contributed to the completion of assigned work to arrive in home port before midnight of the last working day.

### NAUTILUS

The vessel conducted two weeks exploratory work in southern California, and one week of San Francisco Bay Study. Scheduled: 8 days; operated: 20 days.

### MOLLUSK

Secured entire month.

## 10. MISCELLANEOUS


### A. Meetings, Talks and Visitors:

- August 3 - Committee of Two interviewed Edward Rossez, Southern Council of Sportsmen.
- August 3 - Committee of Two interviewed Edward F. Bruce, Southern Council and Vice Chairman, MRC.
- August 3 - Baxter participated in CalCOFI meeting at La Jolla.
- August 3 - Orcutt met with E. Hunt at Sacramento to discuss programs to study shellfish mortalities and pesticide residues.
- August 3&4- Dahlstrom, Gotshall and Poole met with Oregon Fish Commission biologists Snow, Magill and Robinson to discuss crab and shrimp problems in the northern California and southern Oregon area.
- August 5 - Turner talked to a Cerritos College Science class.
- August 9 - Committee of Two interviewed Everett Horn, Richfield Oil Co., Los Angeles.
- August 9 - George Steel, State Dept. Public Health, Pure Food & Drug, met with Smith and local fresh fish dealers to discuss processing procedures at Eureka lab.

- August 10 - Committee of Two interviewed J.D. Flourney, President California Wildlife Federation.
- August 11 - Dr. David Joseph, Executive Secretary, Northern California Pollution Control Board visited the Eureka lab.
- August 11 - C. L. Stover, State Department of Employment met with Smith to discuss a training program for Eureka otter trawl fishermen.
- August 12 - The sand bass tagging program and some preliminary results were discussed at a joint meeting of the Newport Seahorse Spin Fishing and Alamitos Bay Sportsmen Clubs. About 50 members and guests were present.
- August 14 - Mel Odemar gave a talk on fish identification and slides to divers participating in the Underwater Society of America and U.S. National Spearfishing Championship at Carmel.
- August 18 - Heimann attended an Electrophoretic Techniques Seminar in Hollywood.
- August 18 - Wood presented movies and a talk to the Huntington Harbor Boating Club at the Edgewater Inn Marina Hotel, Long Beach. Approximately fifty people were in attendance.
- August 19 - Smith and Hoopaugh gave a slide talk on local marine fauna to 90 underprivileged junior students attending the American Sunday School Missionary Camp at Myers Flat.
- August 20 - Messersmith attended an Electrophoretic Techniques Seminar at San Diego.
- August 23 - Roedel and Johnson met with Assemblyman Vincent Thomas.
- August 26 - Roedel, Baxter, Leighton, Messersmith, and Dopp attended Marine Research Committee Meeting in San Francisco.
- August 26 - Smith and Hoopaugh repeated the slide talk on local marine fauna to 50 senior students at the American Sunday School Missionary Camp.
- August 27 - Roedel, Baxter and Messersmith attended Fish and Game Commission Meeting at San Francisco.

B. Personnel:

- July 30 - Leroy T. Henry, Janitor, separated.

  
John L. Baxter  
Acting Manager